DOCUMENT RESUME

ED 407 786 EC 305 545

AUTHOR Cardona, Cristina
TITLE Including Students with Learning Disabilities in Mainstream Classes: A 2-Year Spanish Study Using a Collaborative Approach to Intervention.
PUB DATE Mar 97
NOTE 34p.; Paper presented at the Annual Meeting of the American Educational Research Association (Chicago, IL, March 24-28, 1997).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Academic Aptitude; Attitude Change; Consultation Programs; Elementary Education; Elementary School Teachers; Emotional Adjustment; Foreign Countries; *Inclusive Schools; *Learning Disabilities; Mainstreaming; Mild Disabilities; *Program Effectiveness; Resource Room Programs; *Self Concept; Student Adjustment; *Teacher Attitudes
IDENTIFIERS Spain

ABSTRACT

This study evaluated the effectiveness of an inclusive program for students (grades 2 through 4) with mild learning disabilities (LD) in four elementary schools in Spain. It compared two support strategies, a within-class integrated program versus resource room approach with students having either high or low learning potential. The study also explored changes in beliefs and attitudes of regular education teachers toward inclusion after participating in an ongoing consultation process. Learning potential was evaluated individually using a test-training-retest model. Students' academic abilities and self-concept were assessed with standardized group and individual measures. Results indicated that the LD students in inclusive settings performed better than segregated LD students in both academics and emotional adjustment (as reflected in higher self-concept scores). Although the LD students with high learning potential were more competent academically than those with low learning potential in both programs, even the low-potential LD students achieved significantly better in the regular classrooms than in the resource rooms. The 11 regular teachers who received weekly consultative support improved their attitudes toward inclusion in comparison to a control group of 8 teachers. (Contains 46 references.) (DB)

Including Students With Learning Disabilities in Mainstream Classes: A 2-Year Spanish Study Using a Collaborative Approach to Intervention

Cristina Cardona

University of Alicante, Spain

Paper presented at the Annual Meeting of the American Educational Research Association. Chicago, IL, March 24-28, 1997

Abstract

The effectiveness of an inclusive program was examined in Four Spanish Elementary Schools. Participants were 60 mild LD students in Grades 2 through 4, and 22 regular and special education resource teachers. The main objectives were: 1) To investigate which support strategy (within-class integrated program versus resource room approach) met better the special educational needs of LD students, as a function of the high/low students' learning potential, and 2) To explore the change in the regular education teachers' beliefs and attitudes toward inclusion after participating in an ongoing consultation process. Results showed that LD students in inclusive settings performed, academically and emotionally, better than segregated LD students. Findings also reported that the high-able LD students were more competent academically than the low-able LD students in both programs but, surprisingly, even the low-able LD students achieved significantly better in the regular classrooms than in the resource rooms. Finally, regular education teachers who received weekly consultative support improved their attitudes toward inclusion in comparison to the control group.

Including Students With Learning Disabilities in Mainstream Classes: A 2-Year Spanish Study Using a Collaborative Approach to Intervention

Cristina Cardona

University of Alicante, Spain

A significant trend in recent world-wide school reform has been the movement to serve children with learning disabilities (LD) in the general classroom as an alternative to providing services in self-contained classrooms or pull-out programs (Sailor, 1991). Such a trend is consistent with the current special education legislation (Public Laws 94-142, and 101-476) which mandates that all children with handicaps be educated in the 'least restrictive environment' to the maximum extend possible.

In Spain, despite the fact that inclusive instructional programs for students with disabilities have received increasing attention, and recent legislation (LOGSE, 1990; Real Decreto 696/1995) recommends alternative instructional arrangements within the classroom, currently, the most common trend (74.27% of the LD Spanish school population) is to refer the LD students to resource programs or pull-out strategies (Muñoz-Repiso et al., 1992).

This trend goes against the philosophy of the mainstreaming and, in itself, does not constitute the best instructional

strategy for the academic and social-emotional growth of LD students (Cardona, Martínez & Pastor, 1993).

To investigate which support strategy met better the special educational needs of LD students, this study longitudinally compared the effects of two alternative forms of intervention (within-class inclusive program versus resource room approach) as a function of the high/low students' learning potential. A second purpose of the study was to explore the change in the regular education teachers' beliefs and attitudes toward mainstreaming/inclusion after participating in a weekly process of consultation with the school psychologist.

Although numerous researchers have expressed concern regarding the quality of instruction that may be expected in inclusive mainstreamed programs (Baker & Zigmond, 1990; Council for Learning Disabilities, 1993), we hypothesized that both, high and low learning potential students, would benefit more in a inclusive program than in a resource room approach, if regular education teachers received appropriate support. We assessed these benefits on the students' achievement (in reading, writing, and math), and on their general and specific self-concept (behavior, intellectual status, physical aspect, anxiety, popularity, and satisfaction). We expected also that regular classroom teachers would improve their perceptions and attitudes toward mainstreaming in comparison with regular classroom teachers who did not receive such support.

Inclusion Rationale and Background

Inclusion is currently one of the most controversial issues in education in all developed schools systems. Statement views about inclusion vary widely from those that include an unqualified enthusiasm (Association for Persons with Severe Handicaps, 1991) to those to which inclusive practices do not provide appropriate services for LD students (Council for Learning Disabilities, 1993; Learning Disabilities Association, 1993), or reticenses about the responsabilities of general education teachers and support staff personnel (American Federation of Teachers, 1993).

Although it is certain that many of the strong responses to the topic of inclusion are based on personal beliefs and perceptions of justice and equality (Vaughn & Schumm, 1995), more than on empirical and documented evidence of its effects, it is also truth that special education programs in self-contained special classes and resource-rooms have failed in demonstrating its superiority over the regular services provided in inclusive settings. This is particularly certain in the European countries where, initially, segregation, and currently, mainstreaming, have been imposed by law with no clear evidence of its academic or affective outcomes (Aguilera, et al., 1990; Hegarty et al., 1981). Furthemore, comparative research studies have been conducted mainly in the U.S.A. Consequently, it is known very little about the efficacy of inclusive programs in the European context.

Studies that have investigated the effectiveness of mainstreaming/inclusive settings could be placed in the following three categories:

1) Full segregation. These first studies compared the benefits of mainstreaming programs by contrasting the effects of placement in self-contained special classes vs. regular classes on the students' achievement and/or self-concept.

2) Partial mainstreaming/inclusion. The efficacy, in this case, has been assessed through two kinds of comparisons: (a) special-class placement vs. resource room program, or (b) resource-room program vs. regular classroom without planning modifications.

3) Full mainstreaming/inclusion. There have been compared resource-room programs vs. regular classroom with instructional modifications/adaptations in the regular classrooms.

Within this framework, the general findings found mainly in American schools are:

1) Favorable conclusions about mainstreaming when full time placement in self-contained special classes is compared with placement in regular classrooms (review of Carlbergh & Kavale (1980), and Madden & Slavin (1983)).

2) Less clear results when resource-room programs were contrasted with placement in regular classroom without planning modifications/adaptations (Sindelar & Deno, 1978; Wang & Baker, 1985-86).

3) Limited evidence of full inclusive programs (Affleck et

al., 1988; Cardona, 1995).

Because of the evidence to justify the existence of the pull-out strategies and mainstreamed programs has been scant (Carlbergh & Kavale, 1980; Kauffman & Trent, 1991; Polloway, 1984), and several major methological problems exist to interpret the research findings (i.e., students are not randomly assigned to groups, outcomes measured do not correspond with the educational program, pretest differences exist among groups, and students characteristics associated with success in the general and special education classrooms are poorly defined (Budoff & Gottlieb, 1976; Sindelar & Deno, 1978)), it is highly recommended to conduct more research incorporating new variables and explaining, clarifying, and controlling what elements are responsible for the success or failure of these research programs (Baker & Zigmond, 1990).

What appears clear is that if the mainstreaming/inclusive initiative is to work in schools, fundamental changes in instruction must occur (Baker & Zigmond, 1990). Teachers who work in inclusive settings need to demonstrate beliefs and skills that will allow them to address the diverse needs of their LD students (Vaughn & Schumm, 1995).

Research findings in this matter (Vaughn & Schumm, 1995, p. 266) converge on the following: (a) "Many teachers do not feel they have the knowledge or skills to appropriately plan for and instruct students with learning disabilities; (b) teachers rely heavily on human resources, particularly the special education

teachers; (c) many teachers believe that instructional adaptations are desirable but not feasible; and (d) classroom observations reveal that many classroom teachers make few or no adaptations to meet the special needs of students with learning disabilities."

However, a big amount of regular classroom teachers feel that mainstreaming/inclusion could provide some benefits (Scruggs & Mastropieri, 1996), and consequently, they would agree in teaching LD students in their classrooms if they received the necessary support. According to the research synthesis conducted by Scruggs and Mastropieri (1996) such need of support relate to:

1. Time. Teachers report a need for 1 hour or more per day to plan for students with disabilities.

2. Training. Teachers need systematic, intensive training, either as part of their certification programs, as intensive and well planned inservices, or as an ongoing process with consultants.

3. Personnel resources. Teachers report a need for additional personnel assistance to carry out mainstreaming objectives.

4. Materials resources. Teachers need adequate curriculum materials and other classroom equipment appropriate to the needs of students with disabilities.

5. Class size. Teachers agree that their class size should be reduced, to fewer than 20 students, if students with disabilities are included.

6. Consideration of severity of disability. Teachers are more willing to include students with mild disabilities than students with more severe disabilities, apparently because of teachers' perceived ability to carry on their teaching mission for the entire classroom. By implication, the more severe the disabilities represented in the inclusive setting, the more the previously mentioned sources of support would be needed (p. 72).

Therefore, if mainstreaming/inclusive programs could provide some benefits, and many teachers would agree in implementing these programs, under the condition of receiving specialist support, research capable of explaining the results of this kind of programs is badly needed. So, in contribution to the field, this study puts under control two important variables: the modality of support provided to LD students (within-class integrated program vs. resource room program) analyzed as a function of the students' learning potential status; and the effects on the regular education teachers' beliefs and attitudes of a systematic ongoing process of consultation between the school psychologist and the regular classroom teachers, established in order to help teachers adapt instruction.

Method

Participants

The study was conducted in Four Elementary Schools, located in the Alicante School District, Spain, where the person who subscribes, was working as a school psychologist, and therefore was responsible for the identification of the LD students and the

follow-up orientation and intervention procedures. Regular education teachers in the four schools were asked to identify their students with learning problems. After the identification process, relied on curriculum based assessment, CBA, and on other formalized procedures, we collected 60 students with mild learning disabilities in Grades 2 through 4, aged between 6 and 10 years. On average, students were 98.88 months old (SD = 12.00). The sample consisted of 41.67% girls, and 58.33% boys. The IQ score distribution ranged between 56 and 105 on the Wechsler Scale, with an average IQ of 83.90 (SD = 10.96). Learning potential on the EPA, Evaluación del Potencial de Aprendizaje (Fernández-Ballesteros et al., 1987), scored between 18 (minimum score) and 34 (maximum score) with an average of 26.83 (SD = 4.05).

The students (30 high and 30 low-able learning potential) were randomly assigned to one of the two experimental conditions (resource room vs. within-class intervention program) resulting four groups of 15 students (within-class/high LP, within-class/low LP, resource-room/high LP, resource-room/low LP). There were no significant statistically differences between treatment groups (within-class vs. resource room) regarding age ($F = 2.08$, $p < .15$), intellectual functioning ($F = 1.57$, $p < .21$), and learning potential ($F = 1.04$, $p < .31$). All students met criteria for certification as learning disabled -a discrepancy of more than 1 standard deviation between achievement and cognitive or intellectual functioning.

Teachers who participated in the study were 22 (19 regular education teachers and 3 specialist resource room teachers). There were 8 male teachers, and 14 female teachers. On average, teachers had 16.00 (range 9-30) years' teaching experience, and 68.00% of them had additional specializations. Eleven out of the 19 regular teachers were assigned to the experimental group; the remaining 8 teachers, to the control group. The teachers' assignment was made as a function of the treatment condition that had corresponded to their LD students. The distribution by age and years of teaching experience between the experimental and control groups were comparable, F (1, 17) = .40, and .97; p <.05, respectively.

Within-Class Inclusive Program

This program was applied to 30 students (15 low and 15 high learning potential students). In this treatment condition, the regular education teacher was responsible for implementing the pertinent instructional adaptations to his/her LD students (maximum two) within the regular classroom.

A school psychologist, working as a consultant, was assigned one day per week to each school. The psychologist task was to collaborate with the regular education teachers in a weekly process of consultation in order to: 1) Determine with the regular education teacher the necessary curriculum adaptations of his/her LD students in a case-by-case process, 2) give advice to the teacher about teaching strategies and techniques in reading, writing, and math, 3) prepare, each other, the weekly plan for

intervention, and 4) follow up and weekly monitoring of the planned activities.

The most common curriculum strategies used to adapt instruction were daily structured lessons (this means that the same basic instructional activities are covered each day) with adapting classroom materials, and 10-15 minutes, approximately, individualized instruction by the teacher, plus 20-30 minutes student guided seat-work.

Resource Room Program

Other 30 students (15 low and 15 high LP students) were randomly assigned to the resource room treatment condition, in which a total of three resource specialist teachers gave response to the LD students' special educational needs. Second-grade LD students attended the resource room in 30-45 minute daily sessions, whereas third and fourth-grade LD students attended sessions in alternate days, 1 hour session for a total of 55 hours, time comparable to the within-class integrated program. Lessons, instructional materiales, and activities were similar in both treatment conditions which lasted 22 weeks.

Measures

Learning potential was determined by using the paradigm test-training-retest. We administered individually to each student the Raven Color Series (Raven, 1971) in the pretest and posttest sessions. The training session was developed using the EPA (Fernández-Ballesteros et al., 1987), learning potential evaluation devise composed by a set of transparencies designed to

train the students through diferent logical reasoning tasks. We conducted this training session by pairs, in two different sub-sessions interrupted by a break of 30 minutes. The procedure was as follows: 1) The students were shown a stimuli that contained a 2 x 2 incomplete design and six alternative responses. 2) The students were asked which was the alternative that completed the stimuli. 3) Once the response was given, and correctly reasoned, we went to the next picture. If incorrect, the student was allowed to choose another option, and in the case of a new error, the examiner gave him/her an explanation in order to help the student comprehend and retain the relevant stimuli attributes. 4) Following, the examiner and the pair of students went to the next picture.

High-able LP students (n = 30) were those whose posttest score was at least more than 1/3 of the standard deviation for the median age group. By the contrary, low-able LP students (n = 30) were those whose pre and posttest scores did not reach the criterion.

Other Spanish standardized tests were used to assess the reading, writing, and math achievements. The TALE, Test de Análisis de la Lecto-Escritura (Toro & Cervera, 1984) was administered individually to provide baseline measures of mechanics in reading and oral reading comprehension. The BADYG-B, Subtest Al.E. (Yuste, 1984), was used to test each child his/her writing by using the alphabet sounds and consonants blends in Spanish. It was administered in a collective format. Finally, the

BADYG-B, Subtest Cálculo (Yuste, 1984), was administered individually to assess the student ability for math computation. Each child was asked to respond orally to 30 questions that involved ordinary problem solving situations.

To assess the students' self-concept, we used the Piers-Harris Children's Self-Concept Scale (Piers, 1969), administered also individually, reading aloud its 80 statements. Regular classroom teachers' beliefs and attitudes toward mainstreaming/inclusion were assessed through the Larrivée and Cook's (1979) Scale, instrument adapted in Spain by García and Alonso (1985).

Data Collection and Analyses

Data were collected at several points in time. During Year 1, student achievement and self-concept tests were administered three times, coincident with the investigation's start-up or pretreatment (Time 1), and the two following school quarters midtreatment (Time 2) and posttreatment (Time 3). Through a second year of study, we assessed a new experimental condition (Follow-up), characterized by the withdrawal of the consultative support given to regular education teachers. Due to a leave of absence grant the school psychologist was absent of school during that second year. When she returned at the end of the third school quarter, she colleted the last round of data.

A 2 x 2 factorial design was used to analyze student data at pre-, mid-, and posttreatment, and follow-up through multivariate procedures (MANOVA and MANCOVA). Scores at pretreatment were used

as covariate measures in the Year 1 analyses in an effort to take into consideration initial differences between groups. On the other hand, posttreatment scores were used as covariate in the Follow-up. Factors considered in each analysis were: learning potential (high vs. low LP) and treatment condition (within-class inclusive program vs. resource room program). An ANCOVA was conducted to compare teachers' beliefs and attitudes before and after the consultative process. Decisions concerning acceptance or rejection of the various null hypotheses associated with these designs were based on p values and its correspondent analyses of difference between the means, using Scheffé method. The analyses were all conducted by using the computer package BMDP (PC 90).

Results

Mean and standard deviations for the outcome variables grouped by domain (academic achievement, self-concept, and teachers' beliefs and attitudes) for the four groups ('in class'-low LP, 'in class'-high LP, resource room-low LP, resource room-high LP), (n = 15), at the four points in time, pre-, mid-, and posttreatment, and follow-up are shown in Tables 1, 2, and 3, respectively.

MANOVAs in Time 1 (pretreatment), conducted in order to judge the comparability of the groups before intervention, were judged nonsignificant. In these analyses the factors were the modality of support, MS (within-class vs. resource room) and the learning potential status, LP (low vs. high). Measures obtained in the pretreatment condition were taken as outcome variables in

Table 1
Means and Standard Deviations across Year 1 and at Follow-up for the Academic Achievement Measures by Treatment Group

	Within-Class Inclusive Program				Resource Room Program			
	Pre	Mid	Post	Followup	Pre	Mid	Post	Followup
LP	Time1	Time2	Time3		Time1	Time2	Time3	
Reading accuracy								
Low	105.67	118.53	127.40	135.33	88.40	96.40	105.13	121.87
	(20.75)	(15.51)	(14.18)	(8.22)	(41.43)	(39.96)	(38.51)	(37.92)
High	120.27	131.00	137.87	145.00	103.67	124.47	133.47	139.87
	(24.27)	(16.65)	(12.04)	(4.31)	(41.00)	(31.18)	(20.48)	(8.42)
Reading Comprehe								
Low	26.93	31.47	38.00	39.20	19.66	20.73	24.93	30.47
	(8.96)	(7.40)	(6.44)	(4.43)	(14.92)	(14.96)	(14.28)	(13.13)
High	30.20	34.00	40.13	41.07	26.07	30.20	34.27	37.20
	(9.70)	(7.08)	(3.83)	(4.65)	(12.49)	(10.16)	(7.12)	(5.86)
Writing								
Low	50.67	62.87	74.80	100.60	34.80	40.67	45.60	71.07
	(30.79)	(31.28)	(31.38)	(19.15)	(29.67)	(34.67)	(30.76)	(36.38)
High	57.47	84.33	94.93	108.47	49.07	58.73	70.47	91.20
	(22.12)	(30.64)	(27.83)	(15.87)	(30.56)	(31.33)	(29.83)	(24.63)
Math								
Low	37.13	43.47	52.13	56.93	31.80	35.67	41.53	49.53
	(13.90)	(15.23)	(13.43)	(12.96)	(13.93)	(13.65)	(12.23)	(11.27)
High	46.40	54.33	62.73	66.80	45.53	51.40	57.67	64.53
	(11.76)	(10.51)	(5.16)	(6.12)	(8.96)	(8.77)	(9.15)	(5.51)

Note. The means are given first; the standard deviations are in parentheses.

Table 2
Means and Standard Deviations across Year 1 and at Follow-up for the Self-Concept Measures by Treatment Group

	Within-Class Inclusive Program				Resource Room Program			
	Pre	Mid	Post	Followup	Pre	Mid	Post	Followup
LP	Time1	Time2	Time3		Time1	Time2	Time3	
General Dimension								
Low	56.80	59.13	60.53	58.67	49.13	49.80	49.93	47.87
	(8.80)	(8.77)	(10.31)	(15.70)	(8.00)	(8.52)	(10.46)	(12.24)
High	50.80	56.47	59.67	58.93	52.20	53.27	50.87	49.53
	(13.51)	(15.69)	(14.53)	(14.60)	(13.20)	(13.51)	(16.41)	(8.69)
Specific Dimensions								
Behavior								
Low	12.27	11.93	12.47	11.40	9.73	9.87	11.20	10.40
	(2.96)	(3.33)	(2.90)	(3.38)	(2.43)	(2.39)	(2.04)	(3.00)
High	9.67	10.53	10.87	11.40	10.47	11.33	10.13	10.13
	(3.98)	(3.93)	(4.32)	(3.78)	(3.46)	(3.42)	(4.19)	(3.62)
Int.Status								
Low	11.73	11.93	11.93	11.07	9.80	8.93	8.13	8.00
	(2.71)	(2.89)	(3.03)	(4.15)	(3.05)	(3.15)	(3.66)	(3.48)
High	11.27	11.60	12.00	11.73	10.67	10.80	9.67	8.73
	(3.35)	(3.58)	(3.32)	(2.60)	(4.06)	(3.65)	(4.50)	(3.45)
Physical Ap								
Low	9.53	9.87	9.67	9.87	9.00	9.40	8.27	8.87
	(3.00)	(2.42)	(3.46)	(3.62)	(2.24)	(3.11)	(3.31)	(3.14)
High	8.87	9.67	10.33	9.80	9.27	8.73	8.60	7.93
	(2.67)	(2.94)	(1.91)	(2.54)	(2.99)	(2.94)	(3.44)	(2.76)
Anxiety								
Low	7.93	9.00	9.33	9.47	6.93	6.87	7.60	6.80
	(2.60)	(2.17)	(2.53)	(2.67)	(2.12)	(2.42)	(2.06)	(2.54)
High	7.40	8.53	10.00	8.80	6.93	7.13	7.20	6.67
	(3.27)	(3.20)	(3.46)	(4.06)	(2.46)	(3.20)	(3.47)	(2.77)
Populari								
Low	7.07	7.87	8.13	7.60	6.40	6.53	6.67	5.67
	(2.15)	(1.25)	(1.92)	(3.11)	(1.76)	(2.29)	(3.20)	(3.15)
High	6.20	7.67	8.33	8.53	6.93	7.27	6.93	7.40
	(2.54)	(2.29)	(2.35)	(2.33)	(2.22)	(2.58)	(2.86)	(2.53)
Satisfac								
Low	8.27	8.53	9.27	9.27	7.53	8.20	8.20	8.13
	(1.28)	(2.59)	(0.96)	(1.44)	(1.51)	(1.26)	(1.15)	(1.81)
High	7.40	8.47	9.00	8.67	7.87	8.00	8.33	8.67
	(1.88)	(1.99)	(1.60)	(2.38)	(2.20)	(2.62)	(1.76)	(1.05)

Note. The means are given first; the standard deviations are in parentheses.

Table 3
Means and Standard Deviations across Year 1 for Teachers' Beliefs and Attitudes by Treatment Group

	EXPERIMENTAL		CONTROL	
	Mean	SD	Mean	SD
Pretest (Time 1)	92.73	10.96	101.88	9.58
Posttest (Time 3)	100.56	9.44	98.38	9.43

the two domains considered, academic achievement and self-concept. So, the initial status between groups before intervention revealed no significant differences in regarding the modality of support. Learning potential, however, introduced significant differences in the academic domain, F (4, 53) = 3.61, p <.05, that the univariate F analysis attributed to arithmetic (p <.001). As we can see, the high-able LP students were superior to the low-able LP peers in math with higher significant scores. No significant interaction effect (MS x LP) was found in any other area or domain.

One way analysis of variance (ANOVA) conducted on teachers' beliefs and attitudes toward mainstreaming/inclusion revealed no differences statistically significant before intervention, F (1, 17) = 3.57, p <.05.

Academic Achievement

There were four achievement measures of interest: reading accuracy, reading comprehension, writing, and math computation. F contrasts for these measures across Year 1 (mid- and posttreatment) and at Follow-up are outlined in Table 4. A

Table 4
F Contrasts across Year 1 and at Follow-up
for Academic Achievement

Sources of Variation	Year 1		Year 2	Direction
	Time 2	Time 3	Follow-up	
Modality of Support				
Overall	**4.24****	**10.41*****	**1.23***	**In-class>Resource**
Reading accuracy	.17	.70	.21	
Reading comprehe	4.03*	18.88***	.10	In-Class>Resource
Writing	7.81**	9.96**	2.80	In-Class>Resource
Math	4.06*	11.83**	1.46	In-Class>Resource
Learning Potential				
Overall	**2.97***	**5.50****	**1.09**	**High LP>Low LP**
Reading accuracy	5.93*	8.66**	.84	High LP>Low LP
Reading comprehe	1.36	4.18*	.28	High LP>Low LP
Writing	1.01	2.07	.12	
Math	5.37*	10.59**	3.48+	High LP>Low LP
Interaction (MS x LP)				
Overall	**2.21+**	**1.86**	**.19**	
Reading accuracy	3.85+	4.36*	.09	L-LP/In-Class>L-LP/RR
Reading comprehe	3.50+	4.80*	.00	L-LP/In-Class>L-LP/RR
Writing	1.86	.02	.25	
Math	.03	.49	.36	

\+ significant at p <.10.
* significant at p <.05.
** significant at p <.01.
*** significant at p < or =.001.

MANCOVA was conducted at each point in time, mid- and posttreatment, using as a covariate the scores obtained on the academic achievement domain in Time 1 (pretreatment). The within-subject variables were the modality of support (2 levels) and the learning potential (2 levels).

At the end of Year 1, the MANCOVA conducted on the achievement measures revealed highly significant differences. The main effects for the modality of support, F (4, 49) = 10.41, p <.0000, and the learning potential, F (4, 49) = 5.50, p <.001, were judged significants. Further analyses (univariate F and the difference between mean comparisons) revealed that the LD students in the 'in class' integrated program achieved better in reading comprehension (p <.001), writing (p <.01), and arithmetic (p <.01) than the LD students assigned to the resource room program. At the same time, high-able LD students achieved better in reading accuracy (p <.01), and in reading comprehension (p <.05), as well as in math computation (p <.01). However, these benefits have to be interpreted as a function of the interactive effect (MS x LP), whose univariate effect, significant at the .05 level, suggests that even the low-able LD students performed better in the inclusive program than in the pull-out strategy.

Surprisingly, there were no significant multivariate nor univariate main effects for MS and LP at the end of the follow-up second-year intervention program. As we have predicted, the MS, LP, and MS x LP significative effects obtained during Year 1 lost its significance through a second-year study, period in which a

new experimental condition is introduced: the withdrawal of the collaborative support to regular classroom teachers.

Findings regarding this new experimental condition compared with those obtained in the previous one are elocuents. Neither the main multivariate effects of MS and LP nor the univariate interaction effect (MS x LP) were judged significant, and what it is worse, the LD students who attended the resource room program did not take advantages, in these conditions, of their peers assigned to the within-class inclusive program.

Students' Self-Concept

The predicted MS and LP effects on the students' self-concept were tested by conducting a 2 x 2 multivariate analysis of covariance (MANCOVA) on the general and specific dimensions of the students' self-concept. Again, scores in Time 1 were used as covariate measures in the analyses. F contrasts across Year 1 and Follow-up intervention are reported in Table 5. As we can see, the predicted multivariate effect for LP and the univariate MS x LP effect were no supported. The main multivariate effect for MS, however, was judged significant, F (6, 45) = 2.99, p <.01), with further analysis revealing that LD students attending the inclusive program perceived themselves as students more positively, F (1, 50) = 6.20, p <.05), and showed a stronger emotional stability, F (1, 50) = 6.05, p <.05, and personal satisfaction, F (1, 50) = 3.37, p <.10, than the LD students attending the resource room. The superiority in intellectual status is maintained through a second year of the study, in which

Table 5
F Contrasts across Year 1 and at Follow-up
for Students' Self-Concept

Sources of Variation	Year 1		Year 2	Direction
	Time 2	Time 3	Follow-up	
General Dimension				
Modality of Support	3.35+	6.97*	2.09	In-Class>Resource
Learning Potential	.68	.12	.13	
Interaction (MS x LP)	.13	.48	.00	
Specific Dimensions				
Modality of Support				
Overall	1.29	2.99*	1.28	In-Class>Resource
Behavior	.02	.01	.14	
Intellec. Status	3.11+	6.20*	5.50*	In-Class>Resource
Physical Aspect	.44	2.46	.51	
Anxiety	4.00+	6.05*	1.56	In-Class>Resource
Popularity	1.23	2.57	.52	
Satisfaction	.22	3.37	.01	
Learning Potential				
Overall	.62	.88	1.82	
Behavior	.71	1.09	.28	
Intellec. Status	2.36	1.16	.51	
Physical Aspect	.02	.38	1.20	
Anxiety	.09	.23	.11	
Popularity	1.19	.22	3.31	
Satisfaction	.01	.04	.01	
Interaction (MS x LP)				
Overall	.74	.29	.57	
Behavior	.61	.70	.29	
Intellec. Status	.31	.03	.02	
Physical Aspect	2.90+	.15	.21	H-LP/In-Class>H-LP/RR
Anxiety	.04	1.32	.02	
Popularity	.19	.10	.61	
Satisfaction	.81	.05	.54	

+ significant at $p < .10$
* significant at $p < .05$.

the LD integrated students felt more competent than their peers in the resource room program.

Teachers' Beliefs and Attitudes Toward Inclusion

The ANCOVA conducted on the teachers' beliefs and attitudes measures also supported a statistically significant difference between teachers who participated in the ongoing process of consultation and teachers who did not do so, F (1, 16) = 7.18, p <.05. Thus, subsequent analysis (difference between the means by Scheffé method, adjusted means of 103.22 and 94.69, with 8.53 points of difference), showed that teachers improved their attitudes toward inclusion (p <.05) as a result of participating in such collaborative experience.

Discussion

This study, conducted to examine the effectiveness of an integrated program, reflects positive outcomes of full inclusive/mainstreaming practices when collaborative supporting strategies are established between regular education teachers and support specialists. Despite the limitation of a relatively small sample size, the findings offer new insights into the potential benefits of full inclusive practices with mild LD students.

Program-Size Effects

As we predicted, LD students in the inclusive program performed highly significant better than segregated LD students in the resource room program (p <.001). The fact that the achievement in reading, writing, and math of WI (within-class integrated) LD students resulted highly significant, p <.0001, in

comparison to the RR (resource room) student achievement is remarkable. These results are congruent with previous research that suggests that, when the regular classroom is reorganized conveniently to meet the educational needs of all students, the academic achievement in this setting is superior to that obtained in self-contained special classes (Calhoun & Elliot, 1977; Leinhardt, 1980), and, at least, comparable to the achievement obtained in resource room programs (Affleck et al., 1988; Jenkins, Peterson & Schrag, 1988; Wang & Birch, 1984).

This superiority could be explained not only by the effect of the placement in the regular classroom per se, but also by the supportive collaborative process established between regular education teachers and school psychologist. So, although continuous assessment, adapted materials and activities, and daily structured lessons, were common elements in both treatment conditions, we believe that the ongoing contact of regular classroom teachers with the school psychologist, and the weekly follow-up strategies were determinant to explained the results obtained.

Such explanation is supported by the data obtained during the Follow-up period, when the process of consultation given to the regular classroom teachers was withdrawn. The consequences were that, the highly significant differences in student achievement found during Year 1 lost its statistically significance.

In regarding the MS x LP effect, our findings corroborate

also the hypotheses predicted (high-able LD students performed better than low-able students in both programs), however, and surprisingly, we found that even the low able LD students achieved better, $p < .05$, in reading (accuracy and comprehension) in the inclusive program than in the resource room. These results provide new insights to those encountered in previous research (Affleck et al., 1988), which did not find statistically significant differences in reading when compared full inclusion with resource programs.

In the self-concept domain, our findings also demonstrated the superiority of the WI students, who felt academically more competent than their peers in the resource room program. These results differ from those obtained in the research literature (Piers, 1977), Luftig (1980), and Chapman (1988), giving support to the hypothesis that placement is not systematically associated with differences in self-concept. However, there is some evidence (Sindelar & Deno, 1978; Madden & Slavin, 1983; Wang & Baker (1985-86) that suggests that, when the regular classroom is equipped to respond to individual differences, the placement in the regular setting maintain the most high potential to protect the students' self-image and self-concept.

Finally, these findings are also congruent in regard to the teachers' beliefs and attitudes. Teachers felt more competent professionally and their attitudes improved as a result of participating in the consultative supporting process (Center & Ward, 1987; Larrivée & Cook, 1978; Thomas, 1985).

In conclusion, the most obvious implication of this investigation for practice and policy is that collaborative strategies are effective, feasible, and desirable to support regular education teachers in implementing inclusive programs because they contribute not only to improve the LD students' achievement, and the teachers' attitudes, but also to train and help regular classroom teachers adapt instruction.

How reasonable is it to presume that regular educators and support specialists will be willing to play a more active role in helping to ensure the successfully full inclusion of LD students? This is a delicate question. We believe it depends, basically, on the efforts, capacity, and willingness of these professionals to act more responsibly and innovatively. But primarily it will depend on the availability of resources. Without enough resources (personal and material resources) it is unreal to think that regular education teachers will be able to make an extra effort to educate LD students in the least restrictive environment.

References

Affleck, J. Q., Madge, S., Adams, A., & Lowenbraun, S. (1988). Integrated classroom versus resource model: Academic viability and effectiveness. Exceptional Children, 54 (4), 339-348.

Aguilera, M. J. et al. (1990). Evaluación del programa de integración escolar de alumnos con deficiencias [Evaluation of the LD mainstreaming program]. Madrid: Publishing Center of the Ministry of Education and Science.

American Federation of Teachers. (1993). Draft AFT position on inclusion. (Available from American Federation of Teachers, 555 New Jersey Avenue NW, Washington, DC 20001).

Association for Persons with Severe Handicaps (1991, July). TASH resolutions and policy statement. (Available from The Association for Persons with Severe Handicaps, 11201 Greenwood Ave., Seattle, WA 98133).

Baker, J., & Zigmond, N. (1990). Are regular education classes equipped to accommodate students with learning disabilities? Exceptional Children, 56 (6), 515-526.

Banerji, M., & Dailey, R. A. (1995). A study of the effects of an inclusion model on students with specific learning disabilities. Journal of Learning Disabilities, 28 (8), 511-522.

Budoff, M., & Gottlieb, J. (1976). Special-class EMR children mainstreamed: A study of an aptitude (learning potential) x treatment interaction. American Journal of Mental Deficiency,

81, 1-11.

Calhoun, G., & Elliot, R. N. (1977). Self-concept and academic achievement of educable retarded an emotionally disturbed pupils. Exceptional Children, 44, 379-380.

Cardona. C. (1995). Educación en la diversidad: Evaluación y perspectivas [Educational response to the diversity: evaluation and perspectives]. Alicante, Spain: Juan Gil-Albert Institute of Culture.

Cardona, C., Martínez, M. A., & Pastor, M. (1993, September). Problemática del modelo de recursos/aula de apoyo en el tratamiento de la diversidad [Resource room model: Issues and concerns]. Paper presented at the Meeting of the Didactica International Congress. La Coruña, Spain.

Carlberg, C., & Kavale, K. (1980). The efficacy of special versus regular class placement for exceptional children: A meta-analysis. The Journal of Special Education, 14 (3), 295-309.

Chapman, J. W. (1988). Learning disabled children's self-concepts. Review of Educational Research, 58 (3), 347-371.

Center, Y., & Ward, J. (1987). Teachers' attitudes towards the integration of disabled children into regular schools. The Exceptional Child, 34 (1), 41-56.

Council for Exceptional Children. (1993). CEC policy on inclusive schools and community settings. Teaching Exceptional Children: Supplement, 25 (4).

Council for Learning Disabilities. (1993). Concerns about the "full inclusion" of students with learning disabilities in

regular education classrooms. Learning Disability Quarterly, 16, 126.

Fernández-Ballesteros, R., Calero, M. D., Campllonch, J. M., & Belchi, J. (1987). Evaluación del potencial de aprendizaje [Learning potential evaluation]. Madrid: MEPSA.

García, J. N., & Alonso, J. C. (1985). Actitudes de los maestros hacia la integración escolar de los niños con necesidades especiales [Teachers' attitudes toward the mainstreaming of LD students]. Infancia y Aprendizaje, 30, 51-68.

Hegarty, S., Pocklington, F., & Lucas, D. (1981). Educating pupils with special needs in the ordinary school. Windsor: The NFER-NELSON Publishing Company.

Jenkins, J. R., & Heinen, A. (1989). Students' preferences for service delivery: Pull-out, in-class or integrated models. Exceptional Children, 55 (6), 516-523.

Jenkins, J. R., Peterson, D., & Schrag, J. (1988). An evaluation of new service models for serving low achieving elementary students. Unpublished manuscript.

Kauffman, J. M., & Trent, S. C. (1991). Issues in service delivery for students with learning disabilities. In B. Y. L. Wong (Ed.), Learning about learning disabilities (pp. 465-481). New York: Academic Press.

Larrivée, B., & Cook, L. (1979). Mainstreaming: A study of the variables affecting teacher attitude. The Journal of Special Education, 13 (3), 315-324.

Learning Disabilities Association. (1993). Position paper on full

inclusion of students with learning disabilities in the regular classroom. LDA Newsbriefs, 28 (2), 1.

Leinhardt, G. (1980). Transition rooms: Promoting maduration and reducing education? Journal of Educational Psychology, 72 (1), 55-61.

LOGSE. (1990). Ley 1/1990, de 3 de octubre, de Ordenación General del Sistema Educativo [Public Law of General Regulation of the Educational System] . BOE, 04/10/90.

Luftig, R. L. (1980). The effect of differential educational placements on the self-concept of retarded pupils: A review. Paper presented at the Annual Meeting of the American Educational Research Association. New York.

Madden, N. A., & Slavin, R. E. (1983). Mainstreaming students with mild handicaps: Academic and social outcomes. Review of Educational Research, 53 (4), 519-569.

Minke, K. M., Bear, G. G., Deemer, S. A., & Griffin, S. M. (1996). Teachers' experiences with inclusive classrooms: Implications for special education reform. The Journal of Special Education, 30 (2), 152-186.

Muñoz-Repiso, M. et al. (1992). El sistema educativo español. 1991 [The Spanish educational system. 1991]. Madrid: Publishing Center of the Ministry of Education and Science.

Piers, E. V. (1969). The manual for the Piers-Harris Self-Concept Scale. Nashville: Counselor Recordings and Tests.

Piers, E. V. (1977). The Piers-Harris Children's Self-Concept Scale: Research monograph #1. Nashville: Counselor Recordings

and Tests.

Polloway, E. A. (1984). The integration of mildly retarded students in the school: A historical review. Remedial and Special Education, 5 (4), 18-28.

Public Law 94-142 (1975). Education for All Handicapped Children Act of 1975, 20 U.S.C. 1400 et seq.

Public Law 101-476 (1990). Individuals with Disabilities Education Act of 1990. Title 20, U.S.C. 1400-1485.

Raven, J. C. (1971). PMC. Matrices progresivas en color [Color progresive matrix, PMC]. Madrid: MEPSA.

Real Decreto 669/1995, de 28 de abril, de ordenación de la educación de los alumnos con necesidades educativas especiales [Reial Decret of regulation of the education of LD students]. BOE, 02/06/95.

Reisberg, L., & Wolf, R. (1986). Developing a consulting program in special education: Implementation and interventions. Focus on Exceptional Children. Nov 1986, 1-14.

Sailor, W. (1991). Special education in the restructured school. Remedial and Special Education, 12 (6), 8-22.

Sindelar, P. T., & Deno, S. L. (1978). The effectiveness of resource programming. The Journal of Special Education, 12 (1), 17-28.

Scruggs, T. E., & Mastropieri, M. A. (1996). Teacher perceptions of mainstreaming/inclusion, 1958-1995: A research synthesis. Exceptional Children, 63 (1), 59-74.

Thomas, D. (1985). The determinants of teachers' attitudes to

integrating the intellectually handicapped. British Journal of Educational Psychology, 55 (3), 251-263.

Toro, J., & Cervera, M. (1984). Test de análisis de lectoescritura [Reading and Writing Analysis Test]. Madrid: Visor Libros.

Vaughn, S., & Schumm, J. S. (1995). Responsible inclusion for students with learning disabilities. Journal of Learning Disabilities, 28 (5), 264-270, 290.

Wang, M. C., & Baker, E. T. (1985-86). Mainstreaming programs: Design features and effects. The Journal of Special Education, 19 (4), 503-521.

Wang, M. C., & Birch, J. W. (1984). Comparison of a full-time mainstreaming program and a resource room approach. Exceptional Children, 51 (1), 33-40.

Yuste, C. (1984). Manual técnico BADYG-B. Madrid: CEPE.

Author's Note

The research reported here was supported by a grant from the Educational Research Center, Madrid, Spain (BOE, 15/02/1990) in the Annual National Concourse of Educational Research, and it was also granted by the Education and Science Department at the Valenciana Community, Valencia, Spain (DOGV, 21/05/90; DOGV, 31/05/91).

TM026793

AREA 1997

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

EC305545

Title: Including Students With Learning Disabilities in Mainstream Classes: A 2-Year Spanish Study	
Author(s): Cristina Cardona	
Corporate Source:	Publication Date:

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic/optical media, and sold through the ERIC Document Reproduction Service (EDRS) or other ERIC vendors. Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce the identified document, please CHECK ONE of the following options and sign the release below.

Check here
Permitting microfiche (4"x 6" film), paper copy, electronic, and optical media reproduction

Sample sticker to be affixed to document

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Level 1

Sample sticker to be affixed to document

"PERMISSION TO REPRODUCE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Level 2

or here
Permitting reproduction in other than paper copy.

Sign Here, Please

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but neither box is checked, documents will be processed at Level 1.

"I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce this document as indicated above. Reproduction from the ERIC microfiche or electronic/optical media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries."

Signature: M.ª E. Cardona	Position: Professor
Printed Name: Cristina Cardona	Organization: University of Alicante, Spain
Address: 3767 Mentone Ave., 211 Los Angeles, CA 90034 U.S.A.	Telephone Number: (310) 838-6450
	Date: 03-27-97

OVER

CUA

THE CATHOLIC UNIVERSITY OF AMERICA
Department of Education, O'Boyle Hall
Washington, DC 20064
202 319-5120

February 21, 1997

Dear AERA Presenter,

Congratulations on being a presenter at AERA[1]. The ERIC Clearinghouse on Assessment and Evaluation invites you to contribute to the ERIC database by providing us with a printed copy of your presentation.

Abstracts of papers accepted by ERIC appear in *Resources in Education (RIE)* and are announced to over 5,000 organizations. The inclusion of your work makes it readily available to other researchers, provides a permanent archive, and enhances the quality of *RIE*. Abstracts of your contribution will be accessible through the printed and electronic versions of *RIE*. The paper will be available through the microfiche collections that are housed at libraries around the world and through the ERIC Document Reproduction Service.

We are gathering all the papers from the AERA Conference. We will route your paper to the appropriate clearinghouse. You will be notified if your paper meets ERIC's criteria for inclusion in *RIE*: contribution to education, timeliness, relevance, methodology, effectiveness of presentation, and reproduction quality. You can track our processing of your paper at http://ericae2.educ.cua.edu.

Please sign the Reproduction Release Form on the back of this letter and include it with **two** copies of your paper. The Release Form gives ERIC permission to make and distribute copies of your paper. It does not preclude you from publishing your work. You can drop off the copies of your paper and Reproduction Release Form at the **ERIC booth (523)** or mail to our attention at the address below. Please feel free to copy the form for future or additional submissions.

Mail to: AERA 1997/ERIC Acquisitions
The Catholic University of America
O'Boyle Hall, Room 210
Washington, DC 20064

This year ERIC/AE is making a **Searchable Conference Program** available on the AERA web page (http://aera.net). Check it out!

Sincerely,

Lawrence M. Rudner, Ph.D.
Director, ERIC/AE

---

[1]If you are an AERA chair or discussant, please save this form for future use.